(19) Europäisches Patentamt
European Patent Offic
Offic uropéen des brevets

(11) Publication number: **0 297 684**
A1

(12) # EUROPEAN PATENT APPLICATION

(21) Application number: 88201355.0

(22) Date of filing: 29.06.88

(51) Int. Cl.⁴: B26D 3/06 , B29C 65/12 , B29C 65/00 , E04F 21/22

(30) Priority: 02.07.87 NL 8701555

(43) Date of publication of application: 04.01.89 Bulletin 89/01

(84) Designated Contracting States: BE DE IT LU NL

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(54) **A tool for forming grooves in floor covering material.**

(57) A device for forming grooves in floor covering material such as linoleum for applying a welding wire into said groove, comprising a carrier (1) having running wheels or sliding surfaces (2), by means of which said carrier (1) can be moved over the floor covering material (3), a support (8) provided on said carrier (1) for accommodating, if required, a heating apparatus (10) and a gouge (4) arranged, as seen in the direction of movement, behind said support (8), said gouge extending over a distance corresponding to the desired depth of the groove (6) beyond the lower surface of the carrier (1), which heating apparatus (10) is, in particular, a hot air apparatus with thermostatic protection.

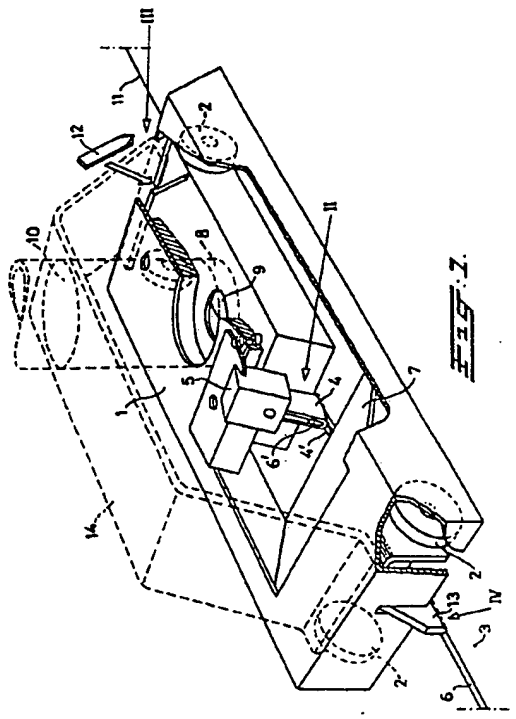

FIG. 7

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A tool for forming gr oves in floor covering material.

For forming grooves in elastic homogeneous floor covering material, such as, for instance, linoleum, PVC material or the like, in which grooves a welding wire is to be applied, for instance for welding together adjoining webs of this material or for obtaining a decorative pattern therein, fraise tools are used by means of which a groove with a more or less curved bottom can be cut into the floor covering material. This tool is moved over de floor covering material in order to form therein the desired groove. A drawback of such tools is that they produce much dust and noise.

The invention provides a tool for this purpose not having the drawbacks of the known fraise tools, which tool is characterised by a carrier with running wheels or sliding surfaces allowing said carrier to be moved over the floor covering surface, by a support provided on said carrier accommodating, depending on the character of the material, a heating apparatus, and by a gouge arranged, as seen in the direction of movement, behind said support, and extending over a distance corresponding to the desired groove depth beyond the lower surface of said carrier.

When required by the floor covering material, the heating apparatus softens said material, so that cutting said material is facilitated, and, moreover, in said softened material, a more sharply defined groove can be formed than in the unheated and relatively hard material.

Further specific embodiments of the tool according to the invention are defined in the subclaims.

The invention will be elucidated below by reference to a drawing, showing in:

Fig. 1 a diagrammatic cross-section of the tool of the invention; and

Figs. 2, 3 and 4 partial sections along the lines II-II, III-III and IV-IV resp. of Fig.1.

The tool according to the invention comprises a carrier 1 adapted to be displaced, on wheels 2, over floor covering material 3, for instance linoleum. At the lower side of the carrier 1 a gouge 4 is mounted, which in particular, consists of a piece of steel strip material bent in the form of a U and having at least one sharp edge, said gouge being fixed on said carrier 1 by means of a fixing element, diagrammatically shown at 5, in such an adjustable manner that the curve 4' of said gouge can penetrate into the floor covering material 3, so that, when moving the carrier 1 forwards, a groove 6 is cut into said material. The cut-out portion 6' arrives, then, on a guiding surface 7 by means of which it is removed upwards.

Ahead of the goug 4 a sleeve 8 is mounted on th carrier 1, which sleeve communicates with a passage 9 in the carrier 1. Said sleeve 8 is adapted for accommodating and fixing therein a hot-air apparatus 10, diagrammatically indicated by dashed lines, e.g. a commercially obtainable hair dryer or the like of sufficient capacity, by means of which a flow of hot air can be directed towards the surface of the floor covering material 3 for softening that material if required, thus facilitating cutting thereof. Such apparatuses are commercially obtainable, and are provided with a thermostat for avoiding overheating. The air flow can, if required, be directed towards the gouge 4 by means of a guiding plate not shown.

If, for instance, the edges of two webs 3a and 3b (Fig. 3) joining each other with a narrow intermediary slot 11, are to be chamferedso as to allow to melt, in the formed groove 6, a welding wire for interconnecting said webs, a guiding spur 12 is inserted into the slot 11, said spur guiding the carrier 1 along said slot 11. Furthermore a wider spur 13 arranged at the rear side of the carrier 1 can then be inserted into the formed groove 6 (Fig. 4). Said spurs can be mounted in a hinged or slidable manner. In this manner the tool can be efficiently guided along the seam between both webs 3a and 3b.

If, on the contrary, the groove 6 is to be formed into the floor covering material 3 according to a decorative pattern, in order to allow it to be filled afterwards with a welding wire having a contrasting colour, the front spur 12 can be inserted into a preformed groove or can be taken away as the case may be, and the rear spur 13 will only be used in the case of straight grooves. For such uses, however, generally guiding templates or rulers or the like will be used.

If required an additional bracket 14 can be provided for supporting the heating apparatus 10, which can be used also as a handle.

Claims

1. A tool for forming grooves in floor covering material such as linoleum for applying a welding wire into said groove, characterised by a carrier (1) having running wheels or sliding surfaces (2), by means of which said carrier (1) can be moved over the floor covering material (3), by a support (8) provided on said carrier (1) for accommodating, if required, a heating apparatus (10), and by a gouge (4) arranged, as seen in the direction of movement, behind said support (8), said gouge extending over

a distanc corresponding to the desired depth of the groove (6) beyond the low r surface of the carrier (1).

2. The tool of claim 1, characterised in that, the heating apparatus (10) is a hot air apparatus with thermostatic protection, and in that its support (8) communicates with a passage (9) through the carrier (1).

3. The tool of claim 2, characterised in that , at the mouth of the support (8) at the lower side of the carrier (1) a guiding plate is provided for directing the air flow towards the gouge (4).

4. The tool of any one of claims 1..3, characterised by a discharge channel (7) for cut-out material (6') joining said gouge (4) and extending through said carrier (1).

5. The tool of any one of claims 1..4, characterised in that, at the front side of the carrier (1), a guiding spur (12) is or can be provided, fitting into a slot (11) between two adjoining floor covering webs (3a, 3b) or into a pre-formed groove.

6. The tool of any one of claims 1..5, characterised in that, at the rear side of the carrier (1), a guiding spur (13) is or can be provided, fitting into the formed groove (6).

7. The tool of any one of claims 1..6, characterised in that, the gouge (4) is formed by a piece of steel strip bent in the form of a U having at least one sharp edge, and being adapted to be connected on the carrier (1) by means of an adjustable connection (5).

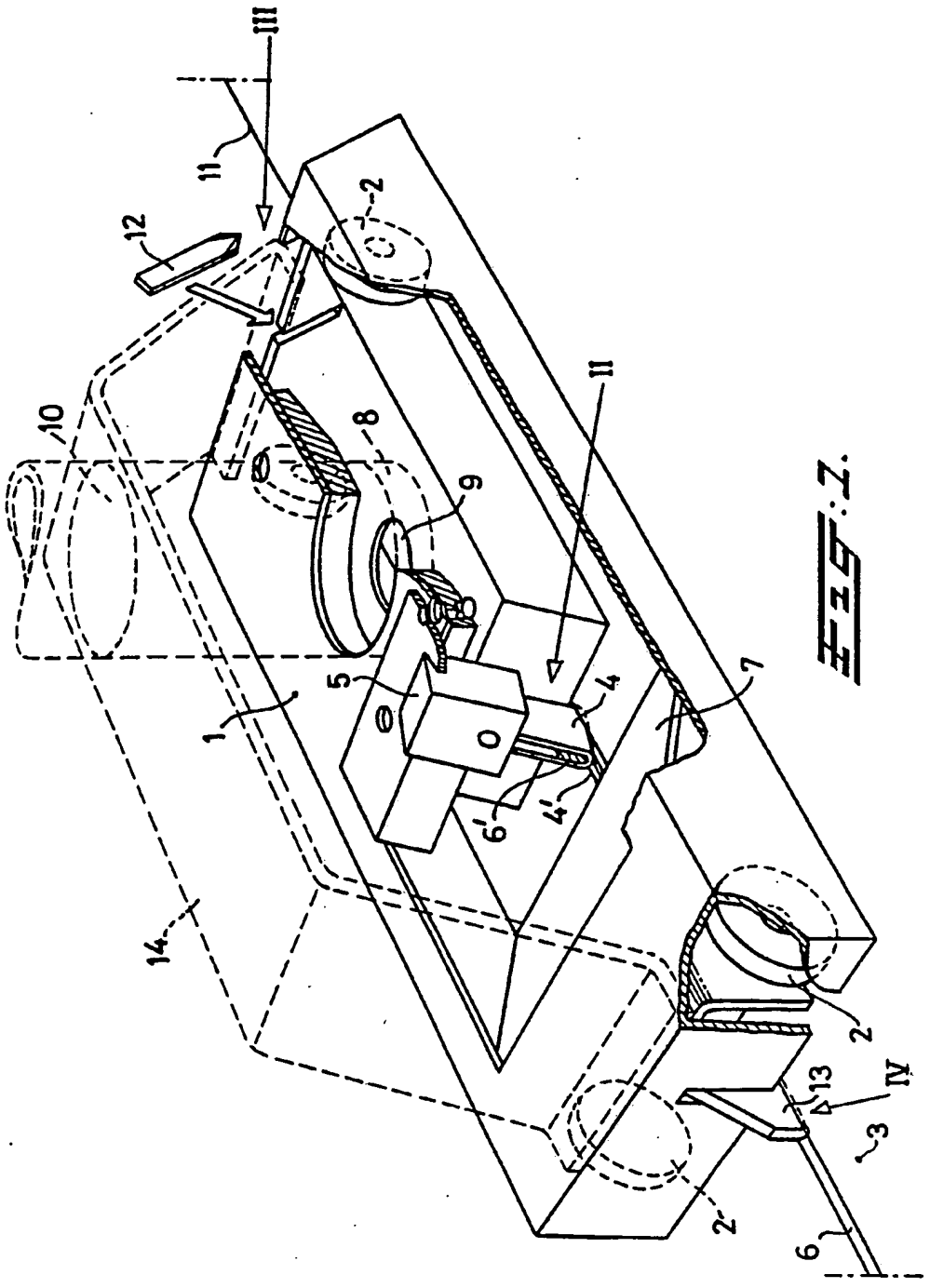

FIG. 2.

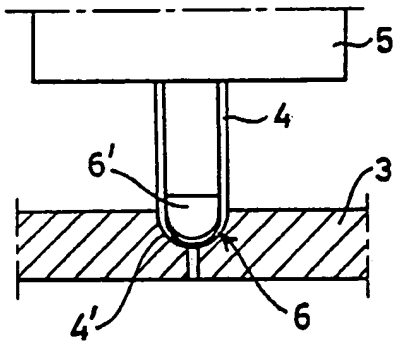

Fig: 2.

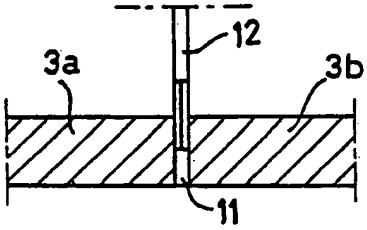

Fig: 3.

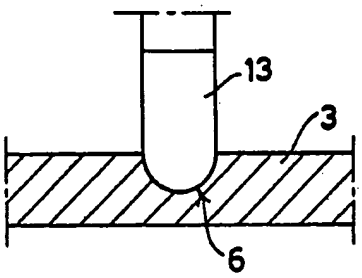

Fig: 4.

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 20 1355

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
Y	FR-A-2 035 199 (KIEVORGSTROI) * Page 3, line 18 - page 4, line 22; figures 1,2 *	1,5,7	B 26 D 3/06 B 29 C 65/12 B 29 C 65/00 E 04 F 21/22
A		3	
Y	US-A-4 656 910 (PETERSON) * Column 2, line 42 - column 4, line 11; figures 1-7 *	1,5,7	
A	FR-A-2 042 892 (KIEVORGSTROI) * Page 3, line 11 - page 5, line 4; figures 1-5 *	1,3,5	
A	DE-B-1 082 041 (SCHMIDBERGER) * Column 3, line 1 - column 4, line 8; figures 1-5 *	1,3,5	
A	US-A-3 996 824 (CAILEY) * Column 1, line 53 - column 3, line 17; figure 1 *	1,4	
A	DE-A-3 318 914 (WOLFF) * Page 5, line 23 - page 7, line 23; figure 1,2 *	1,5,6	TECHNICAL FIELDS SEARCHED (Int. Cl.4) E 04 F B 44 C B 26 D B 29 C
A	FR-A-2 493 890 (MEY)		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	06-10-1988	AYITER J.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P0401)